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SUBJECT: Turkey's Nuclear Energy Plans

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¶1. (U) This cable responds to Ref A request for information for the Civil Nuclear Working Group of the Trade Promotion Coordinating Committee.

#### Overview of Civil Nuclear Power Program

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¶2. (U) The GOT conducted a tender in 2008 for construction and operation of a nuclear power plant in Akkuyu, Mersin Province, with a capacity of 4000 MW (+/- 25 %). The GOT is in the planning stages for a second tender for a plant in the province of Sinop on the Black Sea coast, however no official documents have been released for the tender. The capacity of the Sinop project would be similar to that of Akkuyu. Turkey has estimated reserves of 380,000 tons of Thorium ore at 0.2% concentration and an estimated 9129 tons of Uranium scattered around the country. At present, there is no mining of these resources.

¶3. (U) The GOT sees nuclear power as a way to meet projected power shortages and improve on energy diversification and security. Electricity demand has been growing at a rate of 6-8% per annum over the last 7 years. Turkey projects 2020 annual demand will be between 400 billion and 500 billion kWh, compared to 2007 consumption of 160 billion kWh. Thus far, power has been generated with a combination of hydro, coal and imported gas. Currently, almost 50% of power generation comes from natural gas fired power plants, and the majority of gas is imported from Russia.

¶4. (U) The GOT's nuclear law provides a 15 year power purchase guarantee and provides power plant sites free of charge. The government will also provide environmental impact assessments and permits required. The projects would receive incentives such as customs duty exemption and tax holidays. At this time, the GOT does not plan to be an investor. However, in the event that the private sector does not invest, the GOT has indicated that it is open to considering public-private partnerships.

¶5. (U) The following GOT officials are the key decision makers for the nuclear power plant projects:

- Dr. Hilmi Guler, Minister of Energy and Natural Resources
- Mr. Okay Cakiroglu, President, Turkish Atomic Energy Authority (TAEK)
- Mr. Hasan Koktas, President and Chairman, Energy Market Regulatory Authority (EMRA)
- Dr. Hacı Duran Gokkaya, CEO and Chairman, Turkish Electricity Trading Company, Inc. (TETAS)

16. (U) The Turkish Atomic Energy Authority (TAEK) inspects all nuclear energy related equipment and facilities and determines whether or not such facilities and equipment meet national and international standards and agreements to which Turkey is a party. It also conducts nuclear research and has oversight over small research reactors. It employs approximately 150 people. According to the law on nuclear power passed in November 2007 (ref B), Turkey will establish an independent nuclear regulatory body to oversee civilian nuclear capability. Until such an entity is established, TAEK will act as the regulator. It is unclear to what extent TAEK or TAEK personnel will be tapped for the new regulatory body.

17. (U) Turkey does not have a domestic nuclear liability law. The Nuclear Law makes reference to the Paris Convention as governing liability issues, to which Turkey is a signatory. However, not all amendments to the Paris Convention have been passed by Turkey, nor has supporting implementation legislation been adopted. Turkey is a signatory to the following agreements:

- Treaty on the Non-Proliferation of Nuclear Weapons
- Agreement Between The Government Of The Republic Of Turkey And The IAEA for the Application Of Safeguards in connection with NPT
- Protocol Additional to the Agreement Between The Government Of The Republic Of Turkey And The International Atomic Energy Agency For The Application Of Safeguards in connection with The Treaty On The Non-Proliferation Of Nuclear Weapons
- The Convention On The Physical Protection Of Nuclear Material
- Convention On Assistance In The Case Of A Nuclear Accident Or Radiological Emergency
- Convention On Early Notification Of A Nuclear Accident
- Convention On Nuclear Safety
- Comprehensive Nuclear-Test-Ban Treaty
- Paris Convention On Third Party Liability In The Field Of Nuclear Energy
- Protocol To Amend The Convention On Third Party Liability In The

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Field Of Nuclear Energy Of 29 July 1960

- Protocol To Amend The Convention On Third Party Liability In The Field Of Nuclear Energy Of 29 July 1960, As Amended By The Additional Protocol Of 28 January 1964 And By The Protocol Of 16 November 1982
- Joint Protocol Relating To The Application Of The Vienna Convention And The Paris Convention
- The Agreement For Cooperation Between The United States Of America And The Republic Of Turkey Concerning The Peaceful Uses Of Nuclear Energy
- Agreement Between The Government Of Canada And The Government Of The Republic Of Turkey For Co-Operation In The Peaceful Uses Of Nuclear Energy
- Agreement Between The Government Of The Federal Republic Of Germany And The Government Of The Republic Of Turkey For Cooperation In The Peaceful Uses Of Nuclear Energy
- Agreement Between The Government French Republic And The Government Of The Republic Of Turkey For Co-Operation In The Peaceful Uses Of Nuclear Energy
- Agreement Between The Government Of Korea And The Government Of The Republic Of Turkey For Co-Operation In The Peaceful Uses Of Nuclear Energy
- Agreement Between The Government Of The Republic Of Turkey And The Government Of The Argentine Republic For Co-Operation In The Peaceful Uses Of Nuclear Energy

18. (U) Turkey's manufacturing sector includes companies qualified for heavy steel construction, reinforced concrete construction and manufacturing of some equipment and machinery such as pumps, valves, pipes, and motors. It is likely that the majority of construction would be performed by Turkish companies. Main equipment and machinery including reactors, turbines, boilers, heat exchangers, sub-stations, nuclear safety equipment, SCADA and Telemetry systems would need to be imported.

19. (U) Turkey has many electrical, electronic, civil, mechanical and metallurgical engineers and technicians. Some are experienced on power generation. It is also possible to find engineers and technicians for high precision manufacturing and construction.

However, training for nuclear power generation, nuclear safety, and quality assurance is very much required. A foreign workforce would be necessary for the supervision of local staff and for quality assurance.

#### Opportunities for U.S. Industry

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¶10. (U) The sole bid for Turkey's first nuclear power generation facility is in the evaluation process. The bidding consortium was led by JSC Atomstroyexport (Russia) with JSC Inter RAO UES (Russia) and Park Teknik (Turkey). Five other consortiums were interested - including GE Hitachi Nuclear Energy (GEH) as part of an Iberdrola - Sabanci consortium - but did not submit bids when the GOT declined to grant a time extension or make changes in conditions. TAEK has approved the Russian consortium's technical qualifications and announced that the consortium met the TAEK criteria required for Nuclear Power Plant establishment. On January 19, 2009 the Turkish Electricity Trading Company (TETAS) will open the envelope providing the consortium's offered price per kWh electricity to be delivered to TETAS once the power plant is built. If the price is within acceptable limits, the Council of Ministers will make the final decision on award the license to the subject consortium. Otherwise, the GOT may cancel this tender to be reopened in 2009, although at this point this seems unlikely. The GOT also plans to announce another tender for the private sector to build nuclear power plant in the province of Sinop at the Black Sea coast. The capacity of the Sinop project would be similar to that of Akkuyu. It is unlikely that many companies will bid on the second tender if conditions remain similar to those of the first.

¶11. (U) Opportunities may include consulting services; plant construction management; reactor sales; turbine and generator sales; boiler sales; fuel supply; fuel cycle service; plant operations; nuclear safety equipment and waste management.

¶12. (U) The following companies/consortiums are showing interest in nuclear projects in Turkey:

- ¶1. AECL Atomic Energy of Canada Ltd. (Canada)
- ¶2. Itochu Corporation (Japan)
- ¶3. Vinci Construction Grand Projects (France)
- ¶4. Suez Tractabel (France-Belgium)
- ¶5. Atomstroy Export (Russia)
- ¶6. Enka (Turkey) - KEPCO (South Korea)
- ¶7. China Nuclear Power Components Co. (China)
- ¶8. Unit Investment N.V. (Netherlands)

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- ¶9. Haci Omer Sabanci Holding (Turkey) - Iberdrola (Spain)
- ¶10. General Electric/Hitachi (GEH)(USA)
- ¶11. Alsim-Alarko (Turkey)
- ¶12. Hattat Holding (Turkey)
- ¶13. RWE (Germany)
- ¶14. Ak Enerji (Turkey)

#### Foreign Competitors

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¶13. (U) Nuclear Supply Countries engaged in Turkey: USA, Canada, France, South Korea, Russia, Germany, and Japan. Of these countries, Turkey has bilateral agreements for the peaceful usage of nuclear energy with USA, France, Germany, Canada, and Korea.

¶14. (U) Turkey's bid for EU membership may put pressure on the GOT to favor European bidders in future tenders. Russia's dominant position as a supplier of gas to Turkey may also be a consideration.